

WHAT IS CLAIMED IS:

1. A graphics processor comprising:

a shading processing section which subjects pixel data to a shading process;

5 a first path which permits map data and texture data output from a video memory to be input to the shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the video memory; and

10 a third path which permits pixel data output from a pixel expanding section to be input to the shading processing section and permits pixel data output from the video memory to be input to the shading processing section instead of the above pixel data.

2. The graphics processor according to claim 1, further comprising a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

3. The graphics processor according to claim 2, wherein the write address calculation information contains information corresponding to a pixel expanding system.

4. The graphics processor according to claim 2, wherein the write address calculation information

contains information which indicates a position of an environment map.

5        5. The graphics processor according to claim 2, wherein the write address calculation information contains information which indicates the depth of a pixel.

10       6. The graphics processor according to claim 2, wherein the write address calculation information is attached to an output of the shading processing section.

7. The graphics processor according to claim 6, wherein the write address calculation information contains information corresponding to a pixel expanding system.

15       8. The graphics processor according to claim 6, wherein the write address calculation information contains information which indicates a position of an environment map.

20       9. The graphics processor according to claim 6, wherein the write address calculation information contains information which indicates the depth of a pixel.

10. A graphics processor comprising:  
a shading processing section which subjects pixel  
25 data to a shading process;  
a first path which permits map data and texture data output from a video memory to be input to the

shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the video memory; and

5 a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

10 11. The graphics processor according to claim 10, wherein the write address calculation information contains information corresponding to a pixel expanding system.

15 12. The graphics processor according to claim 10, wherein the write address calculation information contains information which indicates a position of an environment map.

20 13. The graphics processor according to claim 10, wherein the write address calculation information contains information which indicates the depth of a pixel.

25 14. The graphics processor according to claim 10, wherein the write address calculation information is attached to an output of the shading processing section.

15. The graphics processor according to claim 14, wherein the write address calculation information

contains information corresponding to a pixel expanding system.

16. The graphics processor according to claim 14, wherein the write address calculation information  
5 contains information which indicates a position of an environment map.

17. The graphics processor according to claim 14, wherein the write address calculation information  
contains information which indicates the depth of a  
10 pixel.

18. A graphics card comprising:

a first connector which can be connected to an electronic device;

a pixel expanding section which receives image  
15 display data via the first connector and expands the image display data into pixels to create pixel data;

a shading processing section which subjects the pixel data to a shading process;

a video memory;

20 a first path which permits map data and texture data output from the video memory to be input to the shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the  
25 video memory;

a third path which permits pixel data output from the pixel expanding section to be input to the shading

processing section and permits pixel data output from the video memory to be input to the shading processing section instead of the above pixel data;

5 a D/A converter which converts a screen image output from the video memory into a video signal; and

a second connector which can connect an output of the D/A converter to a display unit.

10 19. The graphics card according to claim 18, further comprising a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information.

15 20. The graphics card according to claim 19, wherein the write address calculation information contains information corresponding to a pixel expanding system.

20 21. The graphics card according to claim 19, wherein the write address calculation information contains information which indicates a position of an environment map.

25 22. The graphics card according to claim 19, wherein the write address calculation information contains information which indicates the depth of a pixel.

23. The graphics card according to claim 19, wherein the write address calculation information is

attached to an output of the shading processing section.

24. The graphics card according to claim 23,  
wherein the write address calculation information  
5 contains information corresponding to a pixel expanding system.

25. The graphics card according to claim 23,  
wherein the write address calculation information  
contains information which indicates a position of an  
10 environment map.

26. The graphics card according to claim 23,  
wherein the write address calculation information  
contains information which indicates the depth of a  
pixel.

15 27. A graphics card comprising:

a first connector which can be connected to an electronic device;

a pixel expanding section which receives image display data via the first connector and expands the  
20 image display data into pixels to create pixel data;

a shading processing section which subjects the pixel data to a shading process;

a video memory;

a first path which permits map data and texture  
25 data output from the video memory to be input to the shading processing section;

a second path which permits pixel data output from

the shading processing section to be output to the video memory;

5 a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information;

a D/A converter which converts a screen image output from the video memory into a video signal; and

10 a second connector which can connect an output of the D/A converter to a display unit.

28. The graphics card according to claim 27, wherein the write address calculation information contains information corresponding to a pixel expanding system.

29. The graphics card according to claim 27, wherein the write address calculation information contains information which indicates a position of an environment map.

20 30. The graphics card according to claim 27, wherein the write address calculation information contains information which indicates the depth of a pixel.

25 31. The graphics card according to claim 27, wherein the write address calculation information is attached to an output of the shading processing section.

32. The graphics card according to claim 31,  
wherein the write address calculation information  
contains information corresponding to a pixel expanding  
system.

5        33. The graphics card according to claim 31,  
wherein the write address calculation information  
contains information which indicates a position of an  
environment map.

10       34. The graphics card according to claim 31,  
wherein the write address calculation information  
contains information which indicates the depth of a  
pixel.

15       35. A graphics processing system comprising:  
         an interface bus which can be connected to a  
         peripheral device;  
         a CPU;  
         a bus bridge connected to the interface bus and  
         CPU;  
         a pixel expanding section which receives image  
20       display data via the bus bridge and expands the image  
         display data into pixels to create pixel data;  
         a shading processing section which subjects the  
         pixel data to a shading process;  
         a video memory;  
25       a first path which permits map data and texture  
         data output from the video memory to be input to the  
         shading processing section;



a second path which permits pixel data output from the shading processing section to be output to the video memory;

5 a third path which permits pixel data output from the pixel expanding section to be input to the shading processing section and permits pixel data output from the video memory to be input to the shading processing section instead of the above pixel data; and

10 a D/A converter which converts pixel data output from the video memory into a video signal.

36. The graphics processing system according to claim 35, further comprising a write address calculating section which calculates a write address of pixel data output from the shading processing section with  
15 respect to the video memory according to write address calculation information.

37. The graphics processing system according to claim 36, wherein the write address calculation information contains information corresponding to a  
20 pixel expanding system.

38. The graphics processing system according to claim 36, wherein the write address calculation information contains information which indicates a position of an environment map.

25 39. The graphics processing system according to claim 36, wherein the write address calculation information contains information which indicates the

depth of a pixel.

40. The graphics processing system according to claim 36, wherein the write address calculation information is attached to an output of the shading processing section.

41. The graphics processing system according to claim 40, wherein the write address calculation information contains information corresponding to a pixel expanding system.

42. The graphics processing system according to claim 40, wherein the write address calculation information contains information which indicates a position of an environment map.

43. The graphics processing system according to claim 40, wherein the write address calculation information contains information which indicates the depth of a pixel.

44. A graphics processing system comprising:  
an interface bus which can be connected to a peripheral device;  
a CPU;  
a bus bridge connected to the interface bus and CPU;  
a pixel expanding section which receives image display data via the bus bridge and expands the image display data into pixels to create pixel data;  
a shading processing section which subjects the

pixel data to a shading process;

a video memory;

a first path which permits map data and texture data output from the video memory to be input to the shading processing section;

a second path which permits pixel data output from the shading processing section to be output to the video memory;

a write address calculating section which calculates a write address of pixel data output from the shading processing section with respect to the video memory according to write address calculation information; and

a D/A converter which converts pixel data output from the video memory into a video signal.

45. The graphics processing system according to claim 44, wherein the write address calculation information contains information corresponding to a pixel expanding system.

46. The graphics processing system according to claim 44, wherein the write address calculation information contains information which indicates a position of an environment map.

47. The graphics processing system according to claim 44, wherein the write address calculation information contains information which indicates the depth of a pixel.

48. The graphics processing system according to claim 44, wherein the write address calculation information is attached to an output of the shading processing section.

5        49. The graphics processing system according to claim 48, wherein the write address calculation information contains information corresponding to a pixel expanding system.

10       50. The graphics processing system according to claim 48, wherein the write address calculation information contains information which indicates a position of an environment map.

15       51. The graphics processing system according to claim 48, wherein the write address calculation information contains information which indicates the depth of a pixel.